

REMARKS

The drawings are objected to.

Claims 20 and 21 are objected to for improper dependency. Claim 27 is objected to for an informality.

Claim 27 is rejected under 35 USC 102 as being anticipated by Maghon (5431020).

Claims 16-21 are rejected under 35 USC 103 as being unpatentable over Maghon (5431020) in view of Gerendas (20030089115) in view of Schmahl (20030079475). Claims 22-27 stand rejected under 35 USC 103 as being unpatentable over Maghon (5431020) in view of Gerendas (20030089115) in view of Schmahl (20030079475) in further view of Hosbein (2387663).

Claims 17 and 18 have been canceled herein.

Applicant's Response to Drawing Objections

Figure 1 shows the invention to fit within a combustor by having its heat resistant hot side 4 facing the inside of the combustion chamber. (see paragraph 00047 of the substitute specification). It is well known in the art that such heat shields can be located at any axial location in the combustion chamber, and since no particular axial location is specified or claimed, this description of Figure 1 provides adequate enablement for a person skilled in the art.

However, in an effort to further clarify the drawings per the Examiner's request, the specification has been amended to further define what is already illustrated in the figures. In the originally filed clean substitute specification, paragraph [00048], Applicant states "A corresponding retainer and its attachment in the profiled groove of the **support structure** is also disclosed in EP 0 558 540, to which reference is made for the further configuration and **attachment of the element retainer**." In the referenced document, EP 0 558 540, it refers to the Applicant's support structure as a "bearing structure" (Abstract, element 1), or "carrying structure," (Specification, second paragraph). The specification states heat shield-reinforced "carrying structures" find various uses, for example as **flame tubes** or **hot gas channels** in combustion plants. Further, in paragraph [00005] of the originally filed clean substitute specification, Applicant states "A ceramic heat shield that is particularly suitable for lining a **flame tube** for a gas turbine is disclosed for example in DE 41 14 768 A1." Referring to the

abstract of DE 41 14 768 A1, it can be seen holder 3, (the equivalent of Applicant's element retainer 25), is attached to element 1, which is the heat tube itself. (See also Examiner's art reference Maghon, element 1). Thus, Applicant has referred the reader to references that disclose the support structure 3 as the structure sought to be protected from the heat, such as the heat tube itself, or the wall of a combustion chamber. Therefore, changing the specification in the manner requested does not introduce new matter. As Applicant is not limiting the heat shield to any particular structure or axial location within a structure, Applicant believes this change has properly addressed and overcome Examiner's drawing objection. Applicant respectfully requests the drawing objection be withdrawn.

Applicant's Response to Claim Objections

Applicant has amended claims 20 and 27.

Applicant's Response to 35 USC 102 Rejection

Applicant has amended claim 27, and paragraph [00063] to provide support in the specification for the change to claim 27. This is supported at least by paragraph [00063] and figure 10 of the originally filed clean substitute specification. Figure 10 shows elements 32, the surfaces being referred to in paragraph [00063], and the normal of these elements extends along the longitudinal axis of the groove, as shown in figure 10 and described in paragraph [00063], and thus the amendments are not new matter. Maghon teaches no heat shield element "having surface elements with a surface normal direction that extends in the direction of the **longitudinal axis** of the groove when engaged in the groove." Applicant respectfully requests the 35 USC 102 rejection of claim 27, based on Maghon, be withdrawn.

Applicant's Response to 35 USC 103 Rejections

Applicant has amended claim 16 as supported at least by figure 1 of the originally filed clean substitute specification. Applicant now claims "a plurality of **first** sealing elements, disposed between the heat shield elements, that seal the peripheral gaps; and a plurality of **second** sealing elements, disposed between the support structure and the heat shield elements, that seal the axial gaps." Examiner uses Maghon modified by Gerandas to teach the second sealing elements.

Maghon teaches a heat shield held in place by friction between the cold side of the heat shield and the load bearing structure, (i.e. the protected surface). (Maghon, column 2, lines 63-68). The heat shield in Maghon thus must be in contact with the support structure, which teaches away from modifying Maghon to put a seal between the heat shield and support structure as Examiner proposes. Further, the heat shield in Gerendas requires rims 5 in order for sealing element 3 to seal. (Gerendas, Abstract). See also Gerendas, paragraph 38:

As becomes apparent from the representation, adequate sealing is ensured even under the influence of thermal expansion or displacement of the tiles, with the **sealing element always being forced against the rims** of the tile by the pressure difference over the tile. In particular, cooling air can adequately be supplied also to the rim area (rims 5) of the tiles 1

Thus, it is improper to modify Maghon with the teaching of Gerendas to teach Applicant's "second sealing elements, disposed **between** the support structure and the heat shield elements, that seal the axial gaps," because Maghon requires there be nothing between the surfaces. Schmahl does not teach or suggest the limitation that Gerendas is now precluded from teaching or suggesting. Thus, Claim 16 now survives application of Maghan, Gerendas, and Schmahl. Applicant respectfully requests the 35 USC 103 rejection of claim 16, and claims 19-21, which depend from and include all the limitations of claim 16, be withdrawn.

In amended claim 19 Applicant now claims "a plurality of **second element retainers** for securing the heat shield elements to the support structure in the axial direction of the support structure, the second element retainers **configured to also retain the second sealing elements** in the axial gaps." Applicant's first element retainer equates most closely to Maghon's fastening straps 12. Examiner uses Gerendas fasteners 6 to teach Applicant's second element retainers. Maghon specifically teaches away from using metal fasteners on the hot side of the heat elements: "The invention also permits the **complete avoidance** of metallic fastening elements located on the hot sides of the tiles." (Maghon, column 2, lines 45-47). "It is no longer necessary to fasten the restraints with bolts or the like." (Maghon, column 2, lines 60-61). The fastener 6 of Gerendas is "a threaded bolt." (Gerendas, paragraph [0040].) Thus, Maghon teaches away from being modified as proposed by Gerendas to teach Applicant's second fastener. Schmahl does teach a second element retainer, but as claimed in this claim, the second element retainer

retains the second sealing elements, and per claim 16, the second sealing elements are disposed “between the support structure and the heat shield elements.” The sealing elements of Schmahl are not so disposed, and thus this limitation of claim 19 is not taught or suggested by Maghon, Gerendas, and Schmahl. Applicant respectfully requests the 35 USC 103 rejection of claim 19, and claims 20 and 21, which depend from and include all the limitations of claim 19, be withdrawn.

Applicant has amended claim 20 in order to clarify it. Applicant now claims “wherein inserting the clamp section **clamps the second sealing elements** that are inserted in the clamp section.” Neither Maghon, Gerendas, Schmahl, nor Bradner teach or suggest such a configuration for a clamp and seal. Applicant respectfully requests the 35 USC 103 rejection of claim 20, and claim 21, which depends from and includes all the limitations of claim 20, be withdrawn.

Regarding amended claim 22, Examiner uses Gerendas to teach Applicant’s “recesses formed **between adjacent heat shield elements.**” As argued above, Maghon cannot be modified by Gerendas in a manner that undermines the required frictional contact between the cold surface of the heat shield element and the support structure. As such, Gerendas teaches away from this modification. Further, Applicant has amended claim 22 such that the recess is **between** adjacent heat shield elements. Were the modification to be made, the recesses in Gerendas do not teach or suggest this amended claim limitation. Neither Schmahl nor Hosbein teach or suggest this limitation. Therefore, this limitation of claim 22 must survive application of Maghon, Gerendas, Schmahl, and Hosbein.

As Applicant understands, Examiner uses a stud in a groove in a hanger element to teach Applicant’s claim 22 limitation “securing sections which prevent displacement of the heat shield element relative to the element retainers along the second peripheral surface.” As noted before, Maghon specifically states that friction is sufficient to hold the heat shield elements in place. As such, there is no motivation in the reference or in the art to modify Maghon to prevent movement of the heat shield elements. Examiner does not give a reason for such a modification, but only states that it would be obvious to do so. The presence of knowledge in the art is not sufficient to supply a motivation to modify an art reference per MPEP 2143.01 IV. Modifying Maghon with

Hosbein is thus improper hindsight, done in order to reach Applicant's invention. Thus, because neither Gerendas nor Schmahl teach or suggest what Hosbein is not permitted to teach, this limitation of Applicant's claim 22 also survives the application of Maghon, Gerendas, Schmahl, and Hosbein. Applicant respectfully requests the 35 USC 103 rejection of claim 22, and claims 23-24, which depend from and include all the limitations of claim 22, be withdrawn.

Regarding claim 24, as argued above, Applicant asserts that it is improper to modify Maghon with Hosbein to teach Applicant's stud. Further, in amended claim 24 Applicant now claims "a recess formed in the corners of the heat shield element where the cold side and the axial peripheral surface intersect which, when assembled with other heat shield elements, forms a second, larger recess." Neither Maghon, Gerendas, Schmahl, nor Hosbein teach such a heat shield element. Applicant respectfully requests the 35 USC 103 rejection of claim 24, and claims 25 and 26, which depend from and include all the limitations of claim 24, be withdrawn.

Regarding amended claim 25, Applicant now claims "wherein the stud extends through **only** part of the groove profile." The stud in Hosbein extends entirely through the groove, and thus does not teach or suggest this limitation. Applicant respectfully requests the 35 USC 103 rejection of claim 25 be withdrawn.

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Conclusion

The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper, or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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